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ALLENTOWN, PA.

Lycopodium flabelliforme

E. J. WINSLOW

In an article in the July number of *Rhodora* [1911], Mr. W. H. Blanchard raises *Lycopodium complanatum* var. *flabelliforme* to specific rank. Mr. Blanchard's observations are definite and comprehensive, and a careful reading of his paper will open the eyes of the observer to many interesting details of the structure and manner of growth of this group of fern allies. I quote:

"The two plants *L. complanatum* and *L. tristachyum* have several distinctive characters in common—they have underground rootstocks, ripen their fruit early in the season, have slender peduncles growing from nearly similar points, and enlarge by growth from the ends of all branches, while *L. flabelliforme* has different or just the opposite characters." * * * * *

"In *L. complanatum* the leaves being very minute the axis is practically naked and, marking the end of the season's growth, there is plainly shown a sharp constriction resembling the separation of the thorax and abdomen of a wasp, and each year's growth resembles an elongated sausage.

"The growth of *L. flabelliforme* is entirely upward, that is it does not increase laterally. Its growth consists of an annual elongation of the stem of about $1\frac{1}{2}$ inches (3 to 5 cm.) which, a short distance ($\frac{1}{2}$ to 1 cm.) below the top of the terminal bud, sends out two branches which fork and re-fork from five to seven times and result in giving a striking resemblance to a funnel or tunnel with its sides rising at an angle of 30° from a perpendicular, the slant height of the inverted cone being $1\frac{1}{4}$ to 2 inches (3 to 5 cm.). A branch or a part of a branch when flattened has the appearance of a fan, the fact being that it is funnel-form in the field and flabelliforme in the herbarium. Growth from the ends of these branchlets rarely takes place indicating that they are commonly either destitute of buds or that the buds are dormant and the plant grows (except in rare instances) only by a succession of funnel-bearing increases of stems, the funnels completed (except rarely) the first season."

Since reading this paper I have taken some pains to compare these two plants in the field at several stations in northern Vermont, and there seems to be sufficient reason for regarding them as specifically distinct. On two points my observations do not entirely agree with those of this author. I have usually found *L. complanatum* with a rootstock close to the surface of the ground, differing in this respect very little from *L. flabelliforme*. In *L. flabelliforme* the starting of a second season's growth from the tip of a branch is not, in my experience, a rare occurrence. In some stations, usually in shaded situations, it is very frequent, and even a third year's growth

may be found on an occasional branch. But it is certainly true that this method of growth is exceptional and not the regular thing, as it is in *L. complanatum*.

The differences in the number, form, and attitude of the branches, in the number of strobiles, and the season of maturity, are sufficient to characterize the separate species, but a written comparison gives but a faint notion of the striking difference in the appearance of the two plants as they grow together. At Willoughby Lake, Vt., where both species grow in abundance, with *L. tristachyum* near by, I found several intermediate forms, also considerable variation from the type in both species. With sufficient study, the group may prove as prolific in matter for discussion as the ternate botrychia.

The recent discovery of *L. complanatum* in Hartland, Vt., by Mr. H. G. Rugg, indicates that this species may be looked for considerably south of its supposed northerly range.

LASELL SEMINARY,
AUBURNDALE, MASS.

Edward Palmer

WILLIAM EDWIN SAFFORD

Than longen folk to gon on pilgrimages,
And *palmers* for to seken straunge strondes.
Chaucer, Gen. Prol. to Canterbury Tales.

Dr. Edward Palmer, whose name is known to botanists of all nations, died at his home in Washington, D. C., a few minutes past midnight of Palm Sunday, April 9, 1911, after an illness of a few days. His whole life had been devoted to science, which he served, not as an investigator in any special line, but as an explorer and collector of unrivaled merit. In the field of botany alone he is distinguished as the discoverer of 1.173 new species, includ-